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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,376	06/24/2003	Abid L. Khan	19753-08029	2827

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EXAMINER
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JAGAN, MIRELLYS

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 12/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/603,376

Applicant(s)

KHAN, ABID L.

Examiner

Mirellys Jagan

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 09/25/2003.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Objections*

1. Claim 4 is objected to because of the following informalities:

Claim 4 appears to be stating that the apparatus has an additional photoluminescent material and an additional optic channel to the material and channel that are previously claimed in claim 1.

Claims 5-7 are objected to for being dependent on rejected base claim 4. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent 5,556,204 to Tamura et al [hereinafter Tamura].

Tamura discloses an apparatus for sensing the temperature of an object in contact with a reference, the apparatus having:

a sensing element (41, 49) resiliently mounted within a substantially cylindrical recess in the reference surface (7) to contact the object (6),

a photoluminescent material (48) disposed on the sensing element to emit a luminous radiant flux with an intensity characteristic that is indicative of the temperature of the object in response to excitation with radiant energy,

an optical channel (51) having one end positioned relative to and near the sensing element to transfer the luminous radiant flux therethrough, and having an opposite end disposed to optically couple to an optical analysis apparatus (57) that senses the luminous flux supplied thereto from the optical channel, the channel having a first portion adjacent the one end, and a second portion adjacent the opposite end, wherein the analysis apparatus supplies successive pulses of radiant energy to the optical channel and receives the luminous radiant flux emitted by the photoluminescent material via the optical channel in order to determine the temperature of the object from the intensity of the radiant flux emitted by the photoluminescent material on the sensing element, and

a substantially planar spring that is disposed within the cylindrical recess, wherein the planar spring expands into a coil to resiliently support the sensing element (41, 49) in coaxial orientation within the recess and produce a resilient force thereon in a direction toward the reference surface that increases non-linearly with deflection away from the reference surface (see figure 6; and column 7, line 66-column 8, line 45).

4. Claims 1, 2, 4, 6, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,572,265 to Gotthold.

Gotthold discloses an apparatus for sensing the temperature of an object that is in contact with a reference surface, the apparatus comprising:

a sensing element (43) resiliently mounted within a recess (45) in the reference surface (17) to contact an object (15) disposed on the reference surface, the mounting of the sensing element including substantially planar spring fingers disposed within the recess of substantially cylindrical configuration and substantially co-planar with the reference surface for resiliently supporting the sensing element in substantially coaxial orientation within the recess to produce a resilient force on the sensing element in a direction toward the reference surface which increases non-linearly with deflection away from the reference surface,

a photoluminescent material (49) disposed on the sensing element to emit luminous flux in response to energetic excitation thereof with an intensity characteristic that is indicative of the temperature of the object,

an optical channel (41) having one proximal end positioned relative and near to the sensing element to transfer luminous flux therebetween, and having an opposite remote end disposed to optically couple to an optical analysis apparatus for sensing luminous flux supplied thereto from the optical channel, wherein the analysis apparatus supplies a pulse of radiant energy to the optical channel and receives the luminous radiant flux emitted by the photoluminescent material via the optical channel in order to determine the temperature of the object from the rate of change of intensity (decay rate) of the radiant flux emitted by the photoluminescent material on the sensing element.

Gotthold teaches that any numerous types of resilient members, i.e., springs, may be used to bias the sensing element against the object (see figures 1, 2, 4, and 7; and column 4, lines 14-30).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura in view of U.S. Patent 6,086,246 to Shufflebotham et al [hereinafter Shufflebotham].

Tamura discloses an apparatus having all of the limitations of claim 5, as stated above in paragraph 2, except for the first and second portions of the optical channel being two separate pieces that are selectively coupled together by a coupling structure.

Shufflebotham teaches a system having an optical channel for measure temperature. The optical channel is made of a first piece and a second separate piece that are attached to each other by a connecting structure (120). The connecting structure allows the first piece to remain fixed in the system when the system in order to lessen the risk of damaging the optical channel when the system is disassembled (see figure 3 and abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the optic channel disclosed by Tamura by making the optic

channel of two separate pieces that are attached to each other by a connecting structure, as taught by Shufflebotham, in order to protect the optical channel when disassembling the apparatus.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura in view of Gotthold.

Tamura discloses an apparatus having all of the limitations of claim 7, as stated above in paragraph 2, except for the apparatus determining the temperature by using the rate of change of the intensity.

Gotthold teaches a system for measuring the temperature of an object using an optical channel (41) disposed to optically couple to an optical analysis apparatus for sensing luminous flux supplied thereto from a photoluminescent material via the optical channel. Gotthold uses an analysis apparatus that determines the temperature of the object from the rate of change of intensity (decay rate) of the radiant flux emitted by the photoluminescent material on the sensing element since the rate of change of intensity is a characteristic known to provide accurate temperature measurements (see column 4, lines 14-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus disclosed by Tamura by using the rate of change of the intensity to determine the temperature, as taught by Gotthold, in order to obtain more accurate temperature measurements.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotthold in view of U.S. Patent 6,050,557 to Shimoseki.

Gotthold discloses an apparatus having all of the limitations of claim 3, as stated above in paragraph 3, except for the spring being a substantially planar disc spring.

Shimoseki discloses a resilient member in the form of a substantially planar disc spring. The disc spring is useful for producing a resilient force that increases non-linearly as it expands (see column 3, lines 20-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus disclosed by Gotthold by replacing the resilient spring fingers with a planar disc spring, as disclosed by Shimoseki, in order to provide a spring that completely surrounds the sensing element to more evenly bias the sensing element against the object.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotthold in view of Shufflebotham.

Gotthold discloses an apparatus having all of the limitations of claim 5, as stated above in paragraph 3, except for the first and second portions of the optical channel being two separate pieces that are selectively coupled together by a coupling structure.

Shufflebotham teaches a system having an optical channel for measure temperature. The optical channel is made of a first piece and a second separate piece that are attached to each other by a connecting structure (120). The connecting structure allows the first piece to remain fixed in the system when the system in order to lessen the risk of damaging the optical channel when the system is disassembled (see figure 3 and abstract).



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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the optic channel disclosed by Gotthold by making the optic channel of two separate pieces that are attached to each other by a connecting structure, as taught by Shufflebotham, in order to protect the optical channel when disassembling the apparatus.

*Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 703-305-0930. The examiner can normally be reached on Monday-Thursday from 8AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 703-308-3875. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

mj  
December 18, 2003

  
G. BRADLEY BENNETT  
PRIMARY EXAMINER

AU 2859

~~Diego Gutierrez~~  
~~Supervisory Patent Examiner~~  
~~Technology Center 2800~~